line was 74.3 mIU/mL, and did not significantly change after BCE treatment. Cytology was interpreted as normal/benign at all time points. **Conclusions:** BCE appears effective in relieving menopausal symptoms, and does not appear to increase breast proliferation.

#A97 Green Tea Drinking Reduces Colorectal Cancer Risk in a Prospective Study. Gong Yang,[1] Xiao Ou Shu,[1] Honglan Li,[2] Wong-Ho Chow,[3] Qi Li,[2] Butian Ji,[3] Yu-Tang Gao,[2] Wei Zheng.[1] Vanderbilt University Medical Center,[1] Nashville, TN, Shanghai Cancer Institute,[2] Shanghai, China, Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH, DHHS,[3] Bethesda.

Tea is one of the most commonly consumed beverages in the world. Many in vitro and in vivo studies have suggested potential cancer-inhibitory effects of tea and tea extracts. Evidence from human studies, however, has been limited and inconsistent. We investigated prospectively the association between tea drinking and risk of colorectal cancer in a cohort study of 73,557 Chinese women aged 40 to 70 years and free of cancer at baseline. Information on tea drinking and other lifestyle factors was obtained at baseline through in-person interviews. Virtually all the tea consumers (98.2%) drank green tea. During a mean follow-up of 4.8 years, 260 incident cases of colorectal cancer (150 colon and 110 rectal) were identified. Relative risks (RRs) and 95% confidence intervals (CI) of colorectal cancer associated with tea drinking were calculated using Cox regression models. After adjusting for known risk/protective factors of colorectal cancer, regular tea drinking was associated with a significantly reduced risk of colorectal cancer (RR=0.69; 95%CI, 0.50-0.95); the association became stronger after excluding cases diagnosed during the first year of follow-up (RR=0.56; 95% CI, 0.38-0.83). Risks decreased further with increasing amount (P for trend, 0.03) and years of tea drinking (P for trend, 0.05). The inverse association was seen for both colon and rectal cancers. Tea drinking appeared to be more beneficial to subjects who were non-regular exerciser or who had a higher body mass index or a higher waist-to-hip ratio. This prospective study provides strong evidence that tea consumption may reduce the risk of colorectal cancer.

#A98 Dietary fiber intake and serum hormone levels in postmenopausal Mexican American women: The multiethnic cohort study. Kristine R. Monroe,[1] Suzanne P. Murphy,[2] Brian E. Henderson,[1] Laurence N. Kolonel,[2] Frank Z. Stanczyk,[1] Herman Adlercreutz,[3] Malcolm C. Pike.[1] University of Southern California,[1] Los Angeles, CA, University of Hawaii,[2] Honolulu, HI, University of Helsinki,[3] Helsinki, Finland.

Some evidence suggests that dietary fiber intake may play an important role in estrogen metabolism and may be an important determinant of circulating estrogen levels. This study was designed to investigate whether high dietary fiber intake, either total or a specific fraction (*e.g.*, soluble or insoluble non-starch polysaccharides (NSP) or lignans), is associated with lower circulating estrogen levels. Study subjects were postmenopausal Latina women of Mexican origin who were participants in the Multiethnic Cohort Study. In order to have an appropriate distribution of dietary fiber intakes, the dietary fiber values from the baseline food frequency questionnaire (FFQ) were used to select subjects for inclusion. Subjects agreeing to participate in this sub-study were asked to provide a blood specimen as well as to fill out a second complete FFQ in order to provide dietary information concurrent with blood collection. Dietary fiber intake was quantified in two ways: (1) from the FFQ administered at time of blood draw; and (2) from biomarkers of dietary fiber intake, *i.e.*, the lignan enterolactone (ENL) and the isoflavone genistein. Blood specimens from 255 Latina women who met the inclusion criteria were included in the data analysis. Initially, we examined the effect of dietary fiber intake on blood concentration levels of estrone (E_1), estradiol (E_2), and sex-hormone-binding globulin (SHBG). We found that measures of dietary fiber intake as well as the biomarkers ENL and genistein were significantly associated with serum hormone levels. As predicted, serum E_1 and E_2 levels decreased, as did bioavailable E_2, as dietary fiber or lignan intake increased. These associations remained after adjusting for weight, even though weight strongly and significantly influenced the blood levels of E_1, E_2, bioavailable E_2, and SHBG ($p<0.001$). We also found significant associations between hormone levels and macronutrient intake, specifically percent of calories from fat and saturated fat. Serum E_1, E_2, and bioavailable E_2 increased as dietary fat intake increased. We examined the effects of a low fat/high fiber versus a high fat/low fiber diet on circulating estrogen levels by creating quintiles of fat/fiber or fat/lignan ratios. The data showed a strongly significant, monotonic association between estrogen levels and the makeup of the diet based on fat and fiber intakes. All estrogen levels increased as the ratio of fat to fiber intake increased. As one example, there was a 47% increase in bioavailable E_2 levels between the low fat/high soluble NSP (quintile 1) and the high fat/low soluble NSP (quintile 5) groups ($p<0.001$). Fiber intake influenced hormone levels to a greater degree than fat intake, but the data showed that both were important predictors. This study provides clear evidence of an association between dietary fiber intake and circulating hormone levels in postmenopausal, Latina women, and potentially provides a dietary means for lowering a woman's risk of breast cancer.

#A99 Consumption of Fruits and Vegetables, and Expression of the Mismatch Repair Gene hMLH1 in Human Colorectal Cancer: A Prospective Study. Petra A. Wark,[1] Matty P. Weijenberg,[2] Pieter Van 't Veer,[1] Gerda Van Wijhe,[1] Margreet Lüchtenborg,[2] Goos N. Van Muijen,[3] Anton F. De Goeij,[4] R. Alexandra Goldbohm,[5] Piet A. Van den Brandt.[2] Division of Human Nutrition, Wageningen University,[1] Wageningen, The Netherlands, Nutrition and Toxicology Research Institute Maastricht (NUTRIM), Department of Epidemiology, University of Maastricht,[2] Maastricht, The Netherlands, Department of Pathology, University Medical Center Nijmegen,[3] Nijmegen, The Netherlands, Research Institute Growth and Development (GROW), Department of Pathology, University of Maastricht,[4] Maastricht, The Netherlands, TNO Nutrition and Food Research,[5] Zeist, The Netherlands.

Introduction: Striking clinical and pathological differences exist between colorectal carcinomas with and without defects in the mismatch repair system. Such defects are mainly due to loss of expression of the hMLH1 gene. Animal and *in vitro* studies suggest that fruits, vegetables and folate are associated with expression of mismatch repair genes in the colon and rectum. **Methods:** Associations between consumption of fruits and vegetables and expression of the hMLH1 mismatch repair gene were evaluated in the Netherlands Cohort Study on diet and cancer using a case-cohort approach. In 1986, 120,852 men and women aged 55-69 years completed a questionnaire on dietary and other postulated risk factors for cancer. After 7.3 years of follow-up and with exclusion of the first 2.3 years, hMLH1 protein expression was assessed in colorectal cancer tissue obtained from 725 incident colorectal cancer patients using immunohistochemistry. hMLH1 protein expression was absent in 61 patients (8.4%). Risk ratios (RR) were computed to compare cases with and without hMLH1 expression to the subcohort. **Results:** Consumption of fruits was associated with hMLH1 deficient colorectal carcinomas ($RR_{highest\ versus\ lowest\ tertile}$=0.54, 95% CI=0.28-1.04, P for linear trend=0.06), but not with carcinomas expressing hMLH1 ($RR_{highest\ versus\ lowest\ tertile}$=1.00, 95% CI=0.83-1.22, P for linear trend=0.96). Total consumption of vegetables was not associated with either type of tumour (without hMLH1 expression: RR=0.88, 95% CI=0.47-1.65, P for linear trend=0.68; with hMLH1 expression: RR=0.96, 95% CI=0.77-1.20, P for linear trend=0.70). No clear associations were observed for subgroups of fruits and vegetables, folate and antioxidants. **Conclusions**: These analyses suggest that an inverse association of consumption of fruits with colorectal cancer may be confined to the subgroup of hMLH1-deficient colorectal carcinomas.

#A100 Randomized Trial of a Dietary Intervention to Promote Weight Loss, Decrease Fat Intake, and Increase Consumption of Fruits and Vegetables on Markers of Neoplastic Progression in Barrett's Esophagus. Alan R. Kristal,[1] Jeannette Schenk,[1] Thomas L. Vaughan,[1] Carissa A. Sanchez,[1] Peter S. Rabinovitch,[2] Robert D. Odze,[3] Patricia L. Blount,[1] Brian J. Reid.[1] Fred Hutchinson Cancer Research Center,[1] Seattle, WA, University of Washington,[2] Seattle, WA, Brigham & Women's Hospital,[3] Boston, MA.

Barrett's esophagus, which is associated with chronic gastroesophageal reflux disease (GERD) and a precursor of esophageal adenocarcinoma, is a condition in which the normal stratified squamous epithelium of the distal esophagus is replaced by a specialized metaplastic columnar epithelium. Risk factors for GERD and esophageal adenocarcinoma are similar, and include obesity, high fat intake and low consumption of fruits and vegetables. We hypothesized that an intervention to lower fat, increase fruits and vegetables, promote weight loss and decrease gastroesophageal reflux could reduce neoplastic progression in Barrett's esophagus and thereby reduce the risk